STATE OF IOWA
DEPARTMENT OF COMMERCE
BEFORE THE IOWA STATE UTILITIES BOARD

IN RE:	:	**DOCKET NO. RPU-2016-_____**
LIBERTY UTILITIES (MIDSTATES NATURAL GAS) CORP. D/B/A LIBERTY UTILITIES	:	

DIRECT TESTIMONY OF TIMOTHY S. LYONS

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, OCCUPATION, AND BUSINESS ADDRESS.

A. My name is Timothy S. Lyons. I am a Partner at ScottMadden, Inc. ("ScottMadden"). My business address is 1900 West Park Road, Suite 250, Westborough, MA 01581.

Q. ON WHOSE BEHALF ARE YOU SUBMITTING THIS TESTIMONY?

A. I am submitting this testimony on behalf of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities ("Liberty Midstates" or the "Company") before the Iowa Utilities Board (the "Board").

Q. PLEASE DESCRIBE YOUR PROFESSIONAL AND EDUCATIONAL EXPERIENCE.

A. I have over 30 years of experience in the energy industry. I started my career in 1985 at Boston Gas Company (now part of National Grid), eventually becoming Director of Rates and Revenue Analysis. In 1993, I moved to Providence Gas Company (also now part of National Grid), eventually becoming Vice President of Marketing and Regulatory Affairs. Starting in 2001, I held a number of management consulting positions in the

energy industry first at KEMA and then at Quantec, LLC. In 2005, I became Vice President of Sales and Marketing at Vermont Gas Systems, Inc. before joining Sussex Economic Advisors, LLC ("Sussex") in 2013. Sussex was acquired by ScottMadden on June 1, 2016.

I hold a Bachelor's degree from St. Anselm College, a Master's degree in Economics from The Pennsylvania State University, and a Master's degree in Business Administration from Babson College.

Q. **HAS THIS TESTIMONY BEEN PREPARED BY YOU OR UNDER YOUR DIRECTION?**

A. Yes, it has.

Q. **HAVE YOU PREVIOUSLY TESTIFIED BEFORE A REGULATORY COMMISSION?**

A. Yes. Lyons Direct Exhibit TSL-1 contains a list of regulatory proceedings in which I have submitted testimony.

II. PURPOSE OF DIRECT TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. The purpose of my direct testimony is to describe the methodology used to develop and design the proposed delivery rates for Liberty. My testimony includes: (a) a proposal to establish two new Commercial rate classes to replace the existing Commercial class; (b) the development of an Allocated Cost of Service Study ("COSS"); (c) the development of proposed revenue targets; and (d) a proposed rate design and bill impact analysis for each rate class.

This testimony is organized into the following sections:

Section III describes the Company and its current rate structure.

Section IV describes the approach to allocating costs.

Section V describes the development of the proposed rates.

Section VI describes the bill impact analysis.

Before describing the methodology used to develop and design the proposed delivery rates, I would like to first provide some background on the Company's current rate structure and discuss ongoing concerns related to the current rate structure.

III. CURRENT RATE STRUCTURE

Q. **PLEASE DESCRIBE LIBERTY'S CURRENT RATE STRUCTURE.**

A. Liberty presently serves approximately 4,156 customers in Iowa: 3,685 residential customers (89 percent); and 471 commercial and industrial ("C&I") customers (11 percent). Customers are served under one of six rate classes shown in Figure 1, depending on the type of service and load characteristics.

Figure 1: Current Rate Classes

Rate Class	Availability	Rates
Residential, Schedule 310	Available to any residential customer	Facilities charge: $7.95 First 50 Therms: $0.2911/therm Over 50 Therms: $0.1717/therm
Commercial Firm, Schedule 320	Available to any commercial user	Facilities charge: $13.00 First 200 Therms: $0.2540/therm Over 200 Therms: $0.1320/therm
Commercial Interruptible, Schedule 330	Available on an interruptible basis to any commercial user having a requirement of 140,000 therms per year or greater	Facilities charge: $13.00 First 200 Therms: $0.2540/therm Over 200 Therms: $0.1320/therm
Industrial Firm, Schedule 340	Available to any industrial user	Facilities charge: $1,400.00 First 500,000 Therms: $0.0348/therm Next 1,500,000 Therms: $0.0250/therm Over 2,000,000 Therms: $0.0100/therm
Industrial Interruptible, Schedule 350	Available on an interruptible basis to any industrial user having a requirement of 140,000 therms per year or greater	Facilities charge: $1,400.00 First 500,000 Therms: $0.0348/therm Next 1,500,000 Therms: $0.0250/therm Over 2,000,000 Therms: $0.0100/therm
Transportation, Schedule 360	Available on a firm or interruptible basis to any commercial or industrial user	Administrative fee: $125.00, plus applicable tariff fee for commercial customers, 320-330, and industrial customers, 340-360.

Figure 2 provides a breakdown of Test Year customers and use for the Residential, Commercial and Industrial rate classes. Test Year customers and usage are based on the period June 2014 through May 2015, normalized for weather. The Company selected this period to streamline the regulatory review process in this proceeding as the customer and usage data was previously filed, reviewed and approved by the Board during the most recent Purchased Gas Adjustment ("PGA") proceeding.

The Test Year reflects an adjustment related to Keokuk Steel. This customer has ceased operations since May 2015; thus, it is necessary to remove their usage and revenues from the Test Year. Specifically, the Test Year reflects a reduction in the Industrial class of

1,416,485 therms and $84,849 in revenues. The reductions are based on Keokuk Steel's usage and delivery revenues during the test year.

Figure 2 shows that the Residential class consists of 3,685 customers using 2.8 million therms annually. The Commercial and Industrial ("C&I") classes consist of: (a) 466 Commercial customers using 2.1 million therms annually; and (b) 4 Industrial customers using 7.3 million therms annually. In addition, there is one customer taking service under a special contract.[1]

Figure 2: Test Year Customers and Annual Usage

Liberty Utilities - Iowa Test Year Customers and Usage	Number of Customers	% of Customers	Normalized Annual Use	% of Use	Use per Customer
Residential (GR-310)	3,685	88.7%	2,843,786	7.3%	772
Commercial (GR-320/330)	466	11.2%	2,051,469	5.3%	4,402
Industrial (GC-340/350)	4	0.1%	7,344,300	18.9%	1,836,075
Contract	1	0.0%	26,629,010	68.5%	26,629,010
Total	4,156	100.0%	38,868,564	100.0%	9,353

Figure 2 shows substantial differences in the use per customer among the rate classes, with Residential customers using on average 772 therms per year, while the special contract customer uses 26,629,010 therms per year.

Q. DOES THE COMPANY HAVE CONCERNS WITH THE EXISTING COMMERCIAL RATE CLASSES?

A. Yes, the Company has concerns with the structure of the existing Commercial rate class (i.e., Rate Class GR-320).[2] The Company believes that the existing rate class does not reflect the underlying cost differences in serving different types of customers within the

[1] Test Year customers and annual usage is based on the period June 2014 through May 2015, normalized for weather and adjusted for changes in large customer usage and revenues.

[2] The GR-320 and GR-330 rate classes have been combined for purposes of developing and designing the proposed delivery rates since such rates are currently the same; however, the Company proposes that all other provisions of the GR-330 tariff will remain the same.

Commercial class. The Commercial rate class includes customers that have a wide range of gas demands. The rate class includes, for example, small, storefront businesses whose gas demands are very similar to those of a residential customer in addition to large commercial businesses whose gas demands are substantially greater. These differences in gas demand have an impact on the cost of service, with some customers, for example, having significantly higher service connection costs (e.g., meters and services) than other customers within the same rate class.

The Company believes that the Commercial rate design would be improved by refining the classification into two new rate classes – a small Commercial class and a medium Commercial class – based on annual use. The new rate classes would better reflect the underlying cost differences in serving low use as compared to higher use customers. The new rate classes would also include different customer charges to better reflect the underlying differences in customer-related costs. This approach is consistent with the approach taken by other gas utilities in the Midwest.

Q. WHAT IS THE COMPANY'S PROPOSAL REGARDING THE INTRODUCTION OF NEW RATE CLASSES?

A. As shown in Figure 3, the Company proposes to establish two new Commercial rate classes to replace the existing Commercial class. The first new rate class would be the Small Commercial GC-320(a) rate class and would be applicable to those Commercial customers who use less than 5,000 therms annually. Approximately 395 customers (or 85 percent) of the existing Commercial customers would be mapped to the new Small Commercial rate class. In aggregate, those customers use approximately 0.6 million therms (29 percent) annually. The second new rate class would be the Medium

Commercial GC-320(b) and would be applicable to those commercial customers who use at least 5,000 therms annually. Approximately 71 customers (15 percent) of the existing Commercial customers would be mapped to the new Medium Commercial rate class. Those customers use approximately 1.5 million therms (71 percent) annually.

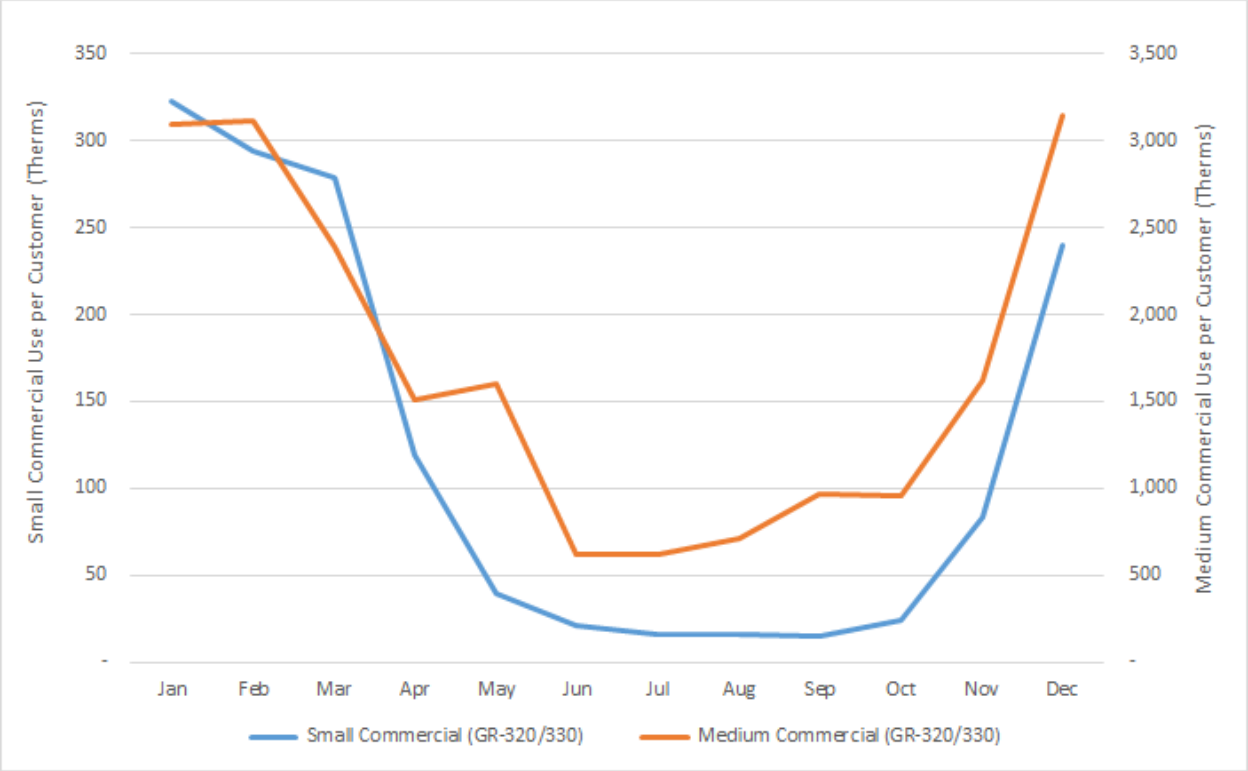
Figure 3: Proposed Commercial Classes (Customers and Use)

Liberty Utilities - Iowa Test Year Customers and Usage	Number of Customers	% of Customers	Normalized Annual Use	% of Use	Use per Customer
Small Commercial	395	84.7%	587,894	28.7%	1,490
Medium Commercial	71	15.3%	1,463,575	71.3%	20,509
Total	466	100.0%	2,051,469	100.0%	4,402

The new rate classes were designed to reflect a distinct breakpoint between Small and Medium Commercial customers. Figure 3 demonstrates clear differences in the annual loads between Small and Medium Commercial customers, with Medium Commercial customers using on average more than 10-times the amount of Small Commercial customers. These load differences result in connection costs differences – discussed below – which on average are higher for Medium Commercial customers than Small Commercial customers. The proposed breakpoint is consistent with several gas utilities within the Midwest, as shown in Lyons Exhibit TSL-2.

Figure 4 illustrates average monthly use per customer throughout the year. The Figure shows significant differences in monthly use throughout the year. The Figure also shows a similar load pattern throughout the year.

Figure 4: Proposed Commercial Classes (Average Monthly Use per Customer)



Q. PLEASE EXPLAIN WHY THE COMPANY PROPOSES TO ESTABLISH TWO NEW COMMERCIAL CLASSES.

A. The Company proposes to establish two new commercial classes to better reflect the cost of providing service to customers within the existing Commercial class. Each new rate class represents different demand characteristics, which are an important basis for assigning costs.

The proposed approach is consistent with industry literature on developing sound rate structures.[3] The NARUC Gas Distribution Rate Design Manual notes,

> "In order to design rates, it is first necessary to divide the utility's customers into various rate classes. This is done by defining rate classes

[3] See e.g., Bonbright, James, Danielsen, Albert, and Kamerschen, David. "Principles of Public Utility Rates." Public Utilities Reports, Inc. pp. 377-407 (2nd ed. 1988).

> according to certain characteristics which are common to all members of the class. The specific factors used to define rate classes will depend upon the characteristics of the customer population and the goals to be achieved. Factors which have been used to define rate classes include: (1) size, (2) customer type, (3) type of usage, (4) interruptible or firm service, (5) load factor, and (6) alternate fuel capability….In determining which factors to use in setting rate classes, it is necessary to consider the objectives to be achieved. In theory utility rates could be designed for only a single rate class. However, an appropriate division of customers into rate classes can achieve a variety of goals, including economic efficiency, fairness and equity, reflection of costs, social needs, competitiveness, operating efficiency, business climate development, rate stability, conservation and political feasibility. The need for a reasonable division of rate classes to achieve these goals exists whether the rates are designed based on cost of service principles or some other means."[4]

The proposed approach is generally consistent with the approach taken by several gas utilities in the Midwest in classifying commercial customers.[5] In addition, Lyons Exhibit TSL-3 includes an article that I co-authored regarding a rate reclassification process for C&I customers.

[4] National Association of Regulatory Utility Commissioners, Staff Subcommittee on Gas. "Gas Distribution Rate Design Manual" pp. 15-17 (June 1989).
[5] See examples: Alliant Energy, http://www.alliantenergy.com/AboutAlliantEnergy/CompanyInformation/Tariffs/030307#rates; Laclede Gas Company, http://www.lacledegas.com/upload/51db19a074024.pdf.

Q. DID SCOTTMADDEN PERFORM A STATISTICAL ANALYSIS TO DETERMINE IF THE PROPOSED COMMERCIAL CLASSES WERE SIGNIFICANTLY DIFFERENT FROM EACH OTHER?

A. Yes. ScottMadden performed a t-test on the proposed rate classes to determine if the load characteristics for each rate class were significantly different from each other.

Q. WHAT DOES A T-TEST SHOW?

A. A t-test is used to evaluate whether there are significant differences in the means or averages of two populations. The larger the magnitude of t-value (either positive or negative), the greater the probability that there is a significant difference in the customer classes. The t-test also produces a p-value which measures the probability that the populations (or customer classes) are statistically the same.

The results of the t-test are included in Lyons Exhibit TSL-2. The results show a t-value of -5.28, which means that there is a statistically significant difference in the means of the two rate classes. The results also show a p-value of 0.000 percent, which means that there is a very low probability that the two customer classes are statistically the same. In other words, the p-value demonstrates that the rate classes are statistically different.

IV. ALLOCATED COST OF SERVICE STUDY

Q. PLEASE DESCRIBE THE PURPOSE OF AN ALLOCATED COST OF SERVICE STUDY ("COSS").

A. The purpose of a COSS is to assign or allocate the Company's overall cost of service to each rate class in a manner that reflects the underlying cost drivers. In this case, the allocation of cost was performed by establishing the relationship for each rate class between the service requirements and the cost drivers for those service requirements. This approach is well established in industry literature and is consistent with past cost of

service studies approved by the Board, including that of Liberty Midstates in Docket No. RPU-95-14.

The COSS included in this testimony was generally based on the methodology filed and approved by the Board in Docket No. RPU-95-14, the Company's 1995 rate case proceeding before the Board.

Q. PLEASE DESCRIBE THE OVERALL PROCESS USED TO PERFORM THE ALLOCATED COSS.

A. The overall approach used to perform the COSS consisted of three steps: (1) functionalization, or cost assignment into functional categories, largely related to production, transmission and distribution; (2) classification, or cost assignment according to whether the costs are related to meeting peak demands or providing customer-related services; and (3) allocation, or cost assignment to rate classes consistent with the functionalization and classification steps described above.

The functionalization process includes separating rate base and expense items into operational components that include production, storage, transmission and distribution. Gas costs, which include production and pipeline charges and related costs, as well as commodity costs, are recovered through the Company's gas cost recovery mechanism and thus are not included in the COSS for purposes of designing delivery rates.

The classification process includes separating functionalized rate base and expense items into classifications that relate to cost drivers. Distribution-related costs are generally classified as demand- or customer-related. Demand-related costs are driven by the requirement to serve customer peak demands, while customer-related costs are driven by

the requirement to connect and provide customer-related services, such as metering and billing services.

The allocation process then assigns total Company rate base and expense amounts to individual rate classes on the basis of the requirements to provide service to those customer classes, including the ability to serve customer peak demands and to connect and provide customer-related services.

The Liberty Midstates-Iowa COSS was performed utilizing an Excel spreadsheet model developed by ScottMadden specifically for utilization in this rate case. Each revenue, rate base and expense item in the Company's overall COSS was assigned to each customer class on the basis of the 3-step process described above. The customer classes used in the COSS are: Residential, GR-310; Small Commercial, GC-320(a); Medium Commercial, GC-320(b); and Industrial, GC-340/350. Since the special contract contains pricing terms that are not impacted by this proceeding, there is no customer class for the special contract and all revenues generated by the special contract are credited to the cost of service based on current margins.

Q. PLEASE DESCRIBE THE OVERALL RESULTS OF THE COST OF SERVICE STUDY.

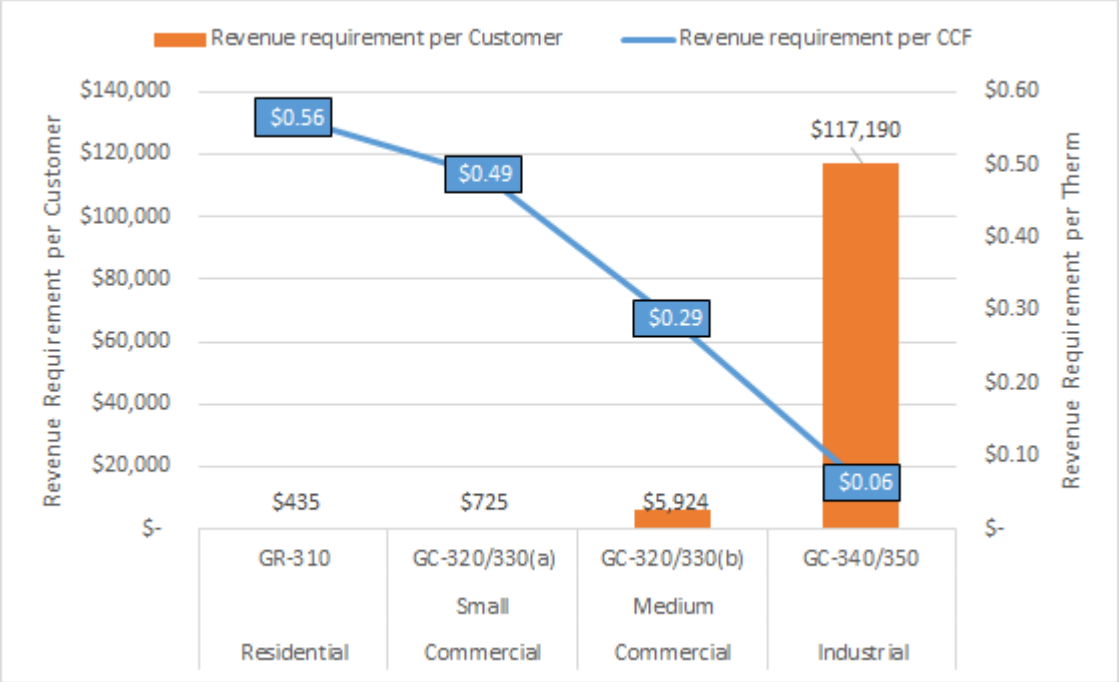
A. The results of the COSS are included in Lyons Exhibit TSL-4. The Exhibit shows the results of the calculated Rate of Return ("ROR") for each customer class as compared to the overall or system ROR based on current rates. The Exhibit shows that the Residential class earns a ROR less than the Company's overall ROR. Specifically, the Residential class earns a ROR of -1.52 percent, which is slightly less than the overall ROR of -1.70 percent.

The Exhibit also shows that certain C&I classes earn a ROR higher than the overall ROR. Specifically, the new Small Commercial rate class earns a ROR of -0.25 percent, which is above the overall ROR of -1.70 percent. In comparison, the Medium Commercial and Industrial rate classes earn a ROR of -2.35 percent and -2.78 percent, respectively, which is below the overall ROR of -1.70 percent.

Q. DO THE COSS RESULTS VARY ACROSS THE PROPOSED COMMERCIAL RATE CLASSES?

A. Yes, the results of the COSS, as shown in Figure 5, show variation in the unit revenue requirement across all of the rate classes. Figure 5 includes the annual revenue requirement on the basis of 'per customer' and 'per Therm'. The Figure shows variation in all of the rate classes, but particularly the proposed Small and Medium Commercial rate classes. Specifically, the 'per customer' revenue requirement is $725 for a Small Commercial customer and $5,924 for a Medium Commercial customer. The 'per Therm' revenue requirement is $0.49 for a Small Commercial customer and $0.29 for a Medium Commercial customer. The results support the Company's proposal to establish separate rate classes for Small and Medium Commercial customers.

Figure 5: Revenue Requirement by Rate Class



Q. PLEASE DESCRIBE THE OVERALL APPROACH TO PREPARE THE COSS.

A. The approach begins with a review of the Company's overall revenue requirement. This is described in the testimony of Witness Schwartz. As discussed in Witness Schwartz testimony, the Company's overall revenue requirement is based on a twelve-month Test Year Period that ends on December 31, 2015. The Test Year Period includes twelve months of actual revenues, expenses and net plant.

As explained above, the Test Year data is then adjusted to reflect the actual number of customers and normalized usage for the period ending June 2014 through May 2015 to be consistent with data that was previously filed, reviewed and approved by the Board in the Company's most recent Purchase Gas Adjustment ("PGA") filing.

The Test Year data also includes rate base items for the twelve-month period ending December 31, 2015. The rate base items include transmission, distribution and general plant-in-service as well as (a) additions to plant-in-service, including pro forma plant

adjustments, labor, gas storage, prepaid expenses and cash working capital; and (b) reductions to plant-in-service, including accumulated depreciation adjustments, accumulated deferred income taxes, customer deposits and reserve for bad debt. Rate base items were assigned to individual rate classes generally consistent with the methodology used in Liberty's 1995 rate case proceeding in Docket No. RPU-95-14 as described below and presented in Lyons Exhibits TSL-5and TSL-6.

The Test Year data also includes expense items for the twelve-month period ending December 31, 2015. The expense items include transmission, distribution, customer service, sales, and administrative and general expenses as well as income taxes and taxes other than income, including payroll and property taxes. Expense items were allocated to individual rate classes generally consistent with the methodology used in Liberty's most recent litigated rate case proceeding in Docket No. RPU-95-14 also described below and presented in Lyons Exhibits TSL-5 and TSL-6.

Q. PLEASE DESCRIBE THE ALLOCATORS USED IN THE COSS.

A. A description of the allocators is included in Lyons Exhibit TSL-5. The Exhibit describes each allocator used in the COSS, including which costs were allocated, how each allocator was derived, and the rationale for utilizing the allocator. For example, the 'C1_customers' allocator is used to allocate meter reading expenses based on the percentage of customers in each rate class. The rationale is that meter reading expenses are driven by the number of customer meters that are read.

Q. PLEASE DESCRIBE THE PROCESS USED TO ALLOCATE RATE BASE TO THE CUSTOMER CLASSES.

A. The process used to allocate rate base to customer classes is included in Lyons Exhibits TSL-5 and TSL-6 and consists of the following four steps. First, gross plant investment by individual FERC account is allocated to each rate class on the basis of an allocator that most closely reflects the underlying cost driver. Second, accumulated depreciation by individual FERC account is allocated to each rate class on the same basis as the gross plant investment for that account. Third, net plant investment by individual FERC account is calculated as the difference between gross plant investment and accumulated depreciation by individual FERC account. Lastly, additions and deletions to net plant investment are allocated to each rate class generally consistent with the methodology used in Liberty's most recent litigated rate case proceeding and that most closely reflects the underlying cost driver to form rate base. Total rate base is shown on Lyons Exhibit TSL-6.

Gross plant investment that is designed to meet the demands of the Company's customers was generally classified as demand-related and then allocated to each rate class on the basis of the demand allocator. Such gross plant investment included distribution facilities, mains, and land and land rights. The allocator used to assign these costs was based on a study that is discussed in more detail below.

Gross plant investment that is designed to connect customers to the system and meet their service requirements was generally classified as customer-related and allocated to each rate class on the basis of various allocators that are related to the numbers of customers. Such distribution plant included: services, meter and other customer-service items. The allocator used to assign these costs was based on studies that calculate each rate class' responsibilities for the associated costs.

Gross plant investment that provides support services for the Company's operations was allocated based on an internally generated labor allocator that was calculated using the accumulated labor expenses associated with the individual FERC accounts during the Test Year. The labor allocator was developed generally consistent with the methodology used in Liberty's most recent litigated rate case proceeding and based on an allocation of each individual FERC Operations and Maintenance account using an allocator that most closely reflects the underlying cost driver for each account. The allocated labor costs were subtotaled by rate class to develop a composite labor allocation factor. The development of the allocator is included in Lyons Exhibit TSL-6.

In addition to the allocators noted above, there were a number of other allocators that were developed internal to the model that used a combination of other supporting factors.

Q. PLEASE DESCRIBE THE PROCESS USED TO DEVELOP THE DEMAND-RELATED ALLOCATOR.

A. The derivation of the demand allocator is included in Lyons Exhibit TSL-7. The Exhibit shows that the demand allocator was based on the Average and Peak ("A&P") method. It is one of the methods used as a demand allocator for natural gas utilities.[6] The allocator is based on a weighted average of each rate classes' responsibility to the average day and the peak day demands of the system. This method is consistent with the approach taken in Docket No. RPU-95-14, Liberty Midstates' 1995 rate case.

The A&P methodology can be expressed with the following formula:

$$\mathbf{A\&Pi = (LF*AVGDEMANDi) + ((1-LF)*PEAKDEMANDi)}$$

Where:

[6] National Association of Regulatory Utility Commissioners, Staff Subcommittee on Gas. "Gas Distribution Rate Design Manual", p. 27 (June 1989).

A&Pi = Average and Peak allocation to rate class i;

LF = System load factor (i.e., System Average Demand/ System Peak Demand);

AVGDEMANDi = Average daily demand for rate class i;

PEAKDEMANDi = Peak demand for rate class i.

The "Average" portion of the allocator is based on each rate class' responsibility to the average daily demands on the system. The "Peak" portion of the allocator is based on each rate class' responsibility to the peak day demands on the system. The "Average" portion is weighted by the system's load factor to arrive at the portion of costs attributable to average use and thus assigned to customers on the basis of the class contribution to average daily demands. The remaining portion (1 minus the system's load factor) is considered attributable to peak use and thus is assigned to customers on the basis of class contribution to peak day demands.[7]

The process used to derive the "Peak" portion of the allocator is included in Lyons Exhibit TSL-7 and consists of four steps. First, heat use per degree day per customer was derived based on the results of a regression analysis for each rate class of heat use per degree day per customer as a function of billing heating degree days. The regression analysis produced strong R-Square results, ranging from 98 percent for the Residential class to 96 percent for the Small Commercial class. The R-Square statistic measures how much variation in a dependent variable (in this case, heat use per customer) can be explained by a variation in an independent variable (in this case, heating degree days). Data for the heat use per customer variable was calculated as the difference between actual use per customer and base use per customer, where base use per customer was

[7] Id.

calculated as the lowest two-month average of the non-heating months of July through September.

The next step was to apply the heat use per day per customer to the Company's design day degree days, in this case 85 degree days, to calculate design day heating use per customer. Then base use per customer was added to the heating use per customer to calculate total design day use per customer. The final step was to multiply the number of customers for each class on the system on the design day by the design day use per customer for each class to calculate total design day use by class. The results are shown on Lyons Exhibit TSL-7. The Exhibit shows that the estimated design day use is 63,282 therms, of which the Residential class represents 40,049 therms, or 63.29 percent of the design day use. It is important to note that the Industrial class is not included in the Design Day calculation since all of the customers are interruptible and thus their demands would be curtailed on a Design Day.

The process used to complete the calculation of the A&P allocator is included in Lyons Exhibit TSL-7. Class contribution to annual demands was calculated by dividing class normal use by total normal use. The Exhibit shows that the average daily demand is 33,533 therms, of which the Residential class represents 7,791 therms, or 23.23 percent. The A&P allocator was then calculated by taking the weighted average (based on the system's load factor) of each class's contribution to annual demands and peak demands. The results are shown in Lyons Exhibit TSL-7. The Exhibit shows that the A&P allocator for the Residential rate class is 42.06 percent.

Q. PLEASE DESCRIBE THE PROCESS USED TO DEVELOP THE CUSTOMER-RELATED ALLOCATORS.

A. Plant investment that is designed to connect customers to the gas distribution system (i.e., meter, meter installation and services plant) was allocated to each rate class on the basis of a meter allocator and a services allocator. These allocators were derived based on current costs since historic cost data was not available. The allocators were developed based on an estimate of the current cost of meters and services, respectively, weighted by the number of meters and services at year-end. The Company determined a current cost for each type of meter and service and how many are installed in each rate class. From this information the Company was able to estimate the total meter and service cost for each customer class.

The Industrial Meter investment was allocated to the Industrial rate class.

The derivation of the meter, meter installation and service investment allocator is shown in Lyons Exhibit TSL-8. The approach is consistent with the prior 1995 rate case.

Q. PLEASE DESCRIBE THE ALLOCATION OF RESERVES FOR DEPRECIATION.

A. The process used to allocate reserves for depreciation to each rate class was consistent with the allocation of the corresponding gross plant investment. The allocation is included in Lyons Exhibit TSL-6.

Q. PLEASE DESCRIBE THE ALLOCATION OF OTHER RATE BASE ITEMS.

A. Additions to rate base and associated allocators included: (a) pro forma plant adjustments and prepaid expenses, which were allocated on the basis of total plant; (b) labor, which was allocated on the basis of total labor; (c) gas storage, which was allocated on the basis

of firm peak demand; and (d) cash working capital, which was allocated on total O&M expenses.

Reductions to rate base and associated allocators included: (a) accumulated deferred income taxes and adjustment to accumulated depreciation, which were allocated on total plant; (b) customer deposits and reserve for bad debt, which were allocated on customers and total revenues, respectively.

The allocation of other rate base items is included in Lyons Exhibits TSL-5 and TSL-6. The approach is generally consistent with the approach taken in the Company's 1995 rate case.

Q. PLEASE DESCRIBE THE ALLOCATION OF OPERATION AND MAINTENANCE ("O&M") EXPENSE ITEMS.

A. The assignment of O&M expenses by FERC account to each rate class generally followed the assignment of gross plant investment associated with the expense account. Customer accounts, sales expenses, and administrative and general expenses were allocated using a variety of methods based on direct assignments, revenues, number of bills and number of customers depending on the cost causation of those expense items. Wherever possible, specific information detailing class cost responsibilities and weightings were utilized to develop the most accurate cost study possible.

Other expense items and associated allocators included: (a) depreciation expenses, allocated on the same basis as gas plant; (b) property taxes, allocated on the basis of total gas plant; and (c) regulatory commission expense, allocated on the basis of total throughput; and (d) labor taxes, allocated on the basis of total labor. Federal and state income taxes were computed for each rate class based on each class's calculated net income.

Q. PLEASE DISCUSS THE RESULTS OF THE COSS.

A. The results of the COSS at current rates are summarized in Figure 6. The results show that the current rates generate different rates of return for each rate class with some classes that produce returns in excess of the Company's overall ROR while other classes produce returns less than the overall ROR.

Figure 6: COSS Results

Rate Class	Revenue Requirements	
	Class ROR	Overall ROR
Residential (GR-310)	-1.52%	-1.70%
Small Commercial (GC-320/330)	-0.25%	-1.70%
Medium Commercial (GC-320/330)	-2.35%	-1.70%
Industrial (GC-350/360)	-2.78%	-1.70%

The Table shows a ROR of -1.52 percent for the Residential class as compared to the Company's overall ROR of -1.70 percent. In addition, the Table shows a ROR of -0.25 percent, -2.35 percent, and -2.78 percent, respectively, for the Small Commercial, Medium Commercial, and Industrial rate classes.

The results of the COSS were used to establish revenue targets that move the Company's rates closer to equalized rates of return and help to reduce the cross-subsidies in the current rate structures.

V. Rate Design

Q. PLEASE DESCRIBE THE PRINCIPLES USED TO GUIDE THE PROPOSED RATE DESIGN.

A. The proposed rate design was guided by several principles common throughout the industry, including the following: (a) rates should recover the overall cost of providing

service; (b) rates should be fair, minimizing inter- and intra-class inequities, to the extent possible; and (c) rate changes should be tempered by rate continuity concerns.[8]

Because these principles can conflict, the rate design process also includes a level of judgment to balance these principles.

Q. HOW WERE THOSE PRINCIPLES APPLIED IN THIS PROCEEDING?

A. First, rates were designed in a way that recovers the overall cost of service. This was done by developing customer charges and consumption rates based on Test Year bills and usage.

In addition, rates were designed to be more fair and equitable. This was done by setting revenue targets for each class at a level closer to the overall ROR. As discussed earlier, the results of the COSS show that the Company's Medium Commercial and Industrial rate classes earn less than the overall ROR. The proposed rate design reduces that deficiency.

Another primary objective in rate design is to maintain pricing stability by minimizing the impact of changes in rates on customers. This objective was considered both during the setting of revenue targets, and again in reviewing the impact of proposed rates on customers' bills at various usage levels within customer classes.

Q. PLEASE SUMMARIZE THE STEPS TAKEN TO DERIVE THE PROPOSED RATES.

A. The first step was to establish the overall revenue requirement to be recovered from base rates. The next step was to set revenue targets for each rate class based on the results of the COSS, as shown on Lyons Exhibit TSL-6. Rates within each customer class were

[8] See Bonbright, James, Danielsen, Albert, and Kamerschen, David. "Principles of Public Utility Rates." Public Utilities Reports, Inc. pp. 377-407 (2nd Ed. 1988).

then designed to recover the revenue requirements based on Test Year customer and usage data.

Q. WHAT IS THE TOTAL REVENUE REQUIREMENT THAT YOU USED AS A STARTING POINT?

A. To determine the total Company revenue requirement for this rate design filing, the Company relied on information from the revenue requirement presented in Witness Schwartz testimony, which indicates a total revenue requirement of $3.2 million. The total revenue requirement was then reduced by the revenues related to the special contract and other revenues of $0.4 million to calculate the revenue requirements for the rate classes shown on Lyons Exhibit TSL-9.

Q. WHAT DATA DID YOU RELY ON IN DESIGNING THE PROPOSED RATES?

A. Most of the information used to design the proposed rates was taken from the COSS, including class revenues at equalized rates of return by rate class. The COSS also estimates unit costs by rate class that are separated into demand- and customer-related costs.

One of the major components of the COSS is the classification of costs on the basis of the function or the service provided. The primary cost categories are: (1) customer-related costs, which represent costs to provide customers with access to the gas distribution system; and (2) demand-related costs, which represent costs to serve peak requirements. The COSS allocates each of these costs to each rate class based on that class' proportionate responsibility for the cost being incurred.

Q. PLEASE DESCRIBE THE PROCESS USED TO SET THE REVENUE REQUIREMENT TARGETS FOR EACH RATE CLASS.

A. Since each rate class presently earns a ROR similar to that of the overall ROR, the revenue targets for each class was based on their revenues at equalized rates of return.

Q. IN GENERAL, HOW DID YOU DETERMINE THE APPROPRIATE RATE DESIGN WITHIN EACH RATE CLASS?

A. The proposed interim rates were designed to recover 50 percent of the proposed revenue increase. Specifically, the proposed interim rates were based on an increase of 30.7 percent of each rate element (i.e., the customer and consumption charges), which represents 50 percent of the proposed increase of 61.3 percent.

The proposed final rates were designed to recover 100 percent of the proposed revenue increase. Specifically, rates were designed by first examining the customer charge for the particular customer class to determine what level of fixed costs may be recovered through customer charges consistent with rate design objectives identified above. This involved examining existing customer charges by rate class and comparing those amounts to the results of the COSS.

As discussed in the testimony of Michael D. Beatty the Company proposes to begin in this proceeding a transition in four phases to a "Straight-fixed variable" ("SFV") rate design. SFV is a pricing approach that aligns recovery of fixed costs through fixed charges and variable costs through variable charges. The Company's goal is to recover its fixed revenue requirements through fixed charges and the remaining revenue requirements through variable charges.

The purpose of the SFV rate design is to better align fixed costs and fixed cost recovery through higher customer charges. There are several benefits of this approach including: (a) decouples utility earnings from customer consumption, thereby removing the

Company's financial disincentive in promoting customer energy efficiency and conservation efforts; (b) reduces revenue volatility, which happens when revenues are tied to usage that changes due to weather, energy efficiency, conservation, and economic conditions; and (c) reduces customer bill volatility, which can happen when customer bills are tied to usage that changes due to weather and other factors. In addition, the SFV is a less complex rate design as the Company also proposes to eliminate its two-step consumption rates. The two-step rate design is generally used to recover fixed costs not recovered through a fixed charge.

The Company proposes a phased approach to SFV since an immediate implementation of SFV rate design would likely create adverse bill impacts for certain customers, especially among low-use customers. Thus, the Company proposes to establish a four-phase transition period to recover its fully-allocated customer-related costs – with each phase after the interim customer charge consisting of an increase in the customer charge by the same amount on a $ per customer basis.

The phased approach and timing would result in residential customer charges shown in Figure 7.

Figure 7: Proposed Residential Customer Charges

Description	Residential
Current	$7.95
Interim Rates	$10.39
Phase I of Final Rates	$16.13
Phase II of Final Rates	$21.87
Phase III of Final Rates	$27.61

The interim customer charge would be based on the percentage increase approved by the Board for interim rates. The customer charge for Phases I, II and III would be based on

the amount approved by the Board for final rates. Since the revenue requirement would not change in Phases I, II and III, the customer charge increases in Phases II and III would be offset by consumption charge decreases by the same revenue amount as the customer charge increases.

Once customer charge levels are set, the remaining revenue requirements for each class are recovered via the consumption charges, as shown in TSL-10. The rate design process was an iterative process that balanced several rate design considerations, including revenue recovery, fairness, and bill continuity. Below a description of the rate design for each rate class.

Residential – GR-310

The proposed final rates were based on a revenue requirement target of $1.6 million, annual customer bills of 44,215 and annual usage of 2,843,786 therms. The Company proposes to increase the monthly customer charge from $7.95 to $27.61 over four phases to recover a larger portion of the revenue requirements. The revenue requirement not recovered through the customer charge is then recovered through a single consumption charge. The proposed rate design, including the phased implementation of SFV rates, and bill impact analysis are included in Lyons Exhibit TSL-10.

Small Commercial – GC-320(a)

The proposed final rates were based on a revenue requirement target of $0.3 million, annual customer bills of 4,736 and annual usage of 587,894 therms. The Company proposes to increase the monthly customer charge from $13.00 to $41.69 over four phases to recover a larger portion of the revenue requirements. The revenue requirement not recovered through the customer charge is then recovered through a single

consumption charge. The proposed rate design, including the phased implementation of SFV rates, and bill impact analysis are included in Lyons Exhibit TSL-10.

Medium Commercial – GC-320(b) and GC-330

The proposed Medium Commercial rates were based on a revenue requirement target of $0.4 million, annual customer bills of 856 and annual usage of 1,463,575 therms. The Company proposes to increase the monthly customer charge from $13.00 to $249.93 over four phases to recover a larger portion of the revenue requirements. The revenue requirement not recovered through the customer charge is then recovered through a single consumption charge. The proposed rate design, including the phased implementation of SFV rates, and bill impact analysis are included in Lyons Exhibit TSL-10.

Industrial – GC-340/350

The proposed Industrial rates were based on a revenue requirement target of $0.5 million, annual customer bills of 48 and annual usage of 7,344,300 therms. The Company proposes to increase the monthly customer charge from $1,400 to $2,145.50 over four phases to recover a larger portion of the revenue requirements. The fully-allocated customer-related costs for this class are less than the customer charge; thus, the Company proposes to increase the customer charge by the percentage increase of the customer class. The revenue requirement not recovered through the customer charge is then recovered through a single consumption charge. The proposed rate design, including the phased implementation of SFV rates, and bill impact analysis are included in Lyons Exhibit TSL-10.

VI. BILL IMPACTS

Q. HAVE YOU EXAMINED THE IMPACT OF YOUR PROPOSED CHANGE IN RATES ON CUSTOMERS WITHIN EACH RATE CLASS?

A. Yes. As shown in Lyons Direct Exhibits TSL-10, the Company evaluated the bill impacts of the proposed changes on customers based on a range of annual usage within each rate class. The range of annual usage represents an approximate uniform distribution across the rate classes. The proposed rates were based on the rate design discussed above. The bill impact analysis was calculated using two approaches: (a) without a PGA charge, to evaluate the change in the delivery portion of the customer bill; and (b) with a PGA charge, to evaluate the change in the total customer bill.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

AFFIDAVIT

STATE OF MASSACHUSETTS)
) ss:
COUNTY OF WORCESTER)

I, Timothy S. Lyons, being first duly sworn on oath, do hereby depose and state:

1. I am a Partner of ScottMadden, Inc. and my business address is 1900 West Park Road, Suite 250, Westborough, MA 01581.

2. The foregoing written Direct Testimony and exhibits thereto were prepared by me or under my direct supervision and I have directed that my written Direct Testimony to be filed with the Iowa Utilities Board on July 25, 2016.

3. I hereby affirm that my written Direct Testimony is true and correct to the best of my knowledge and belief as of the date of this affidavit.

Done at Westborough, Massachusetts, on July 22, 2016.

/s/ Timothy S. Lyons

Timothy S. Lyons, Partner

Subscribed and sworn to before me on July 22, 2016.

/s/ Kimberly Dao

Notary Public in and for said County and State Massachusetts

My commission expires March 11, 2022.